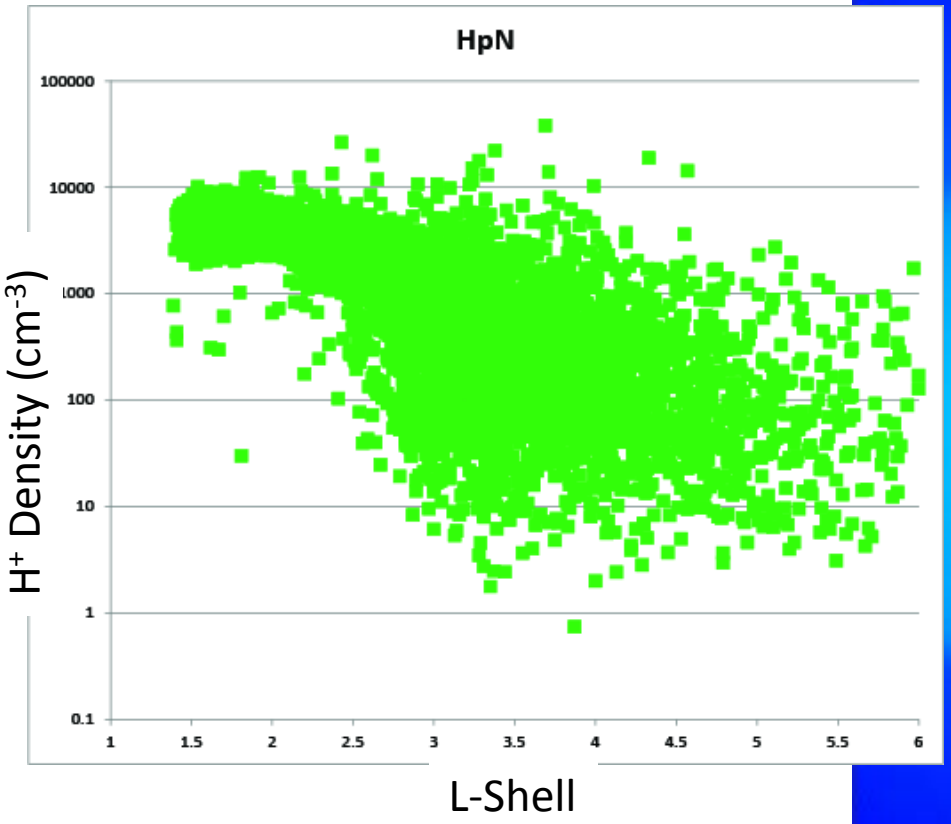
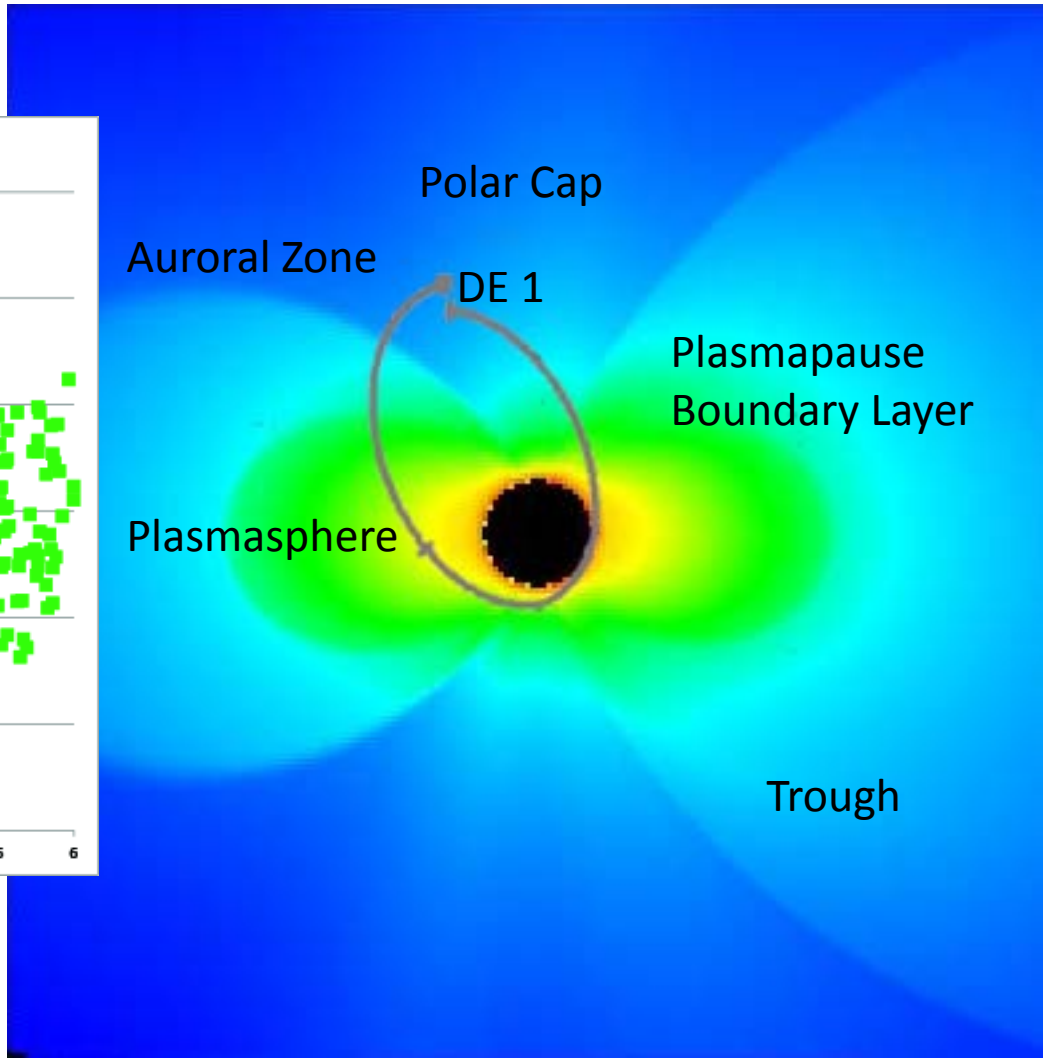
The Plasmasphere from the DE 1 Retarding Ion Mass Spectrometer

D. L. Gallagher

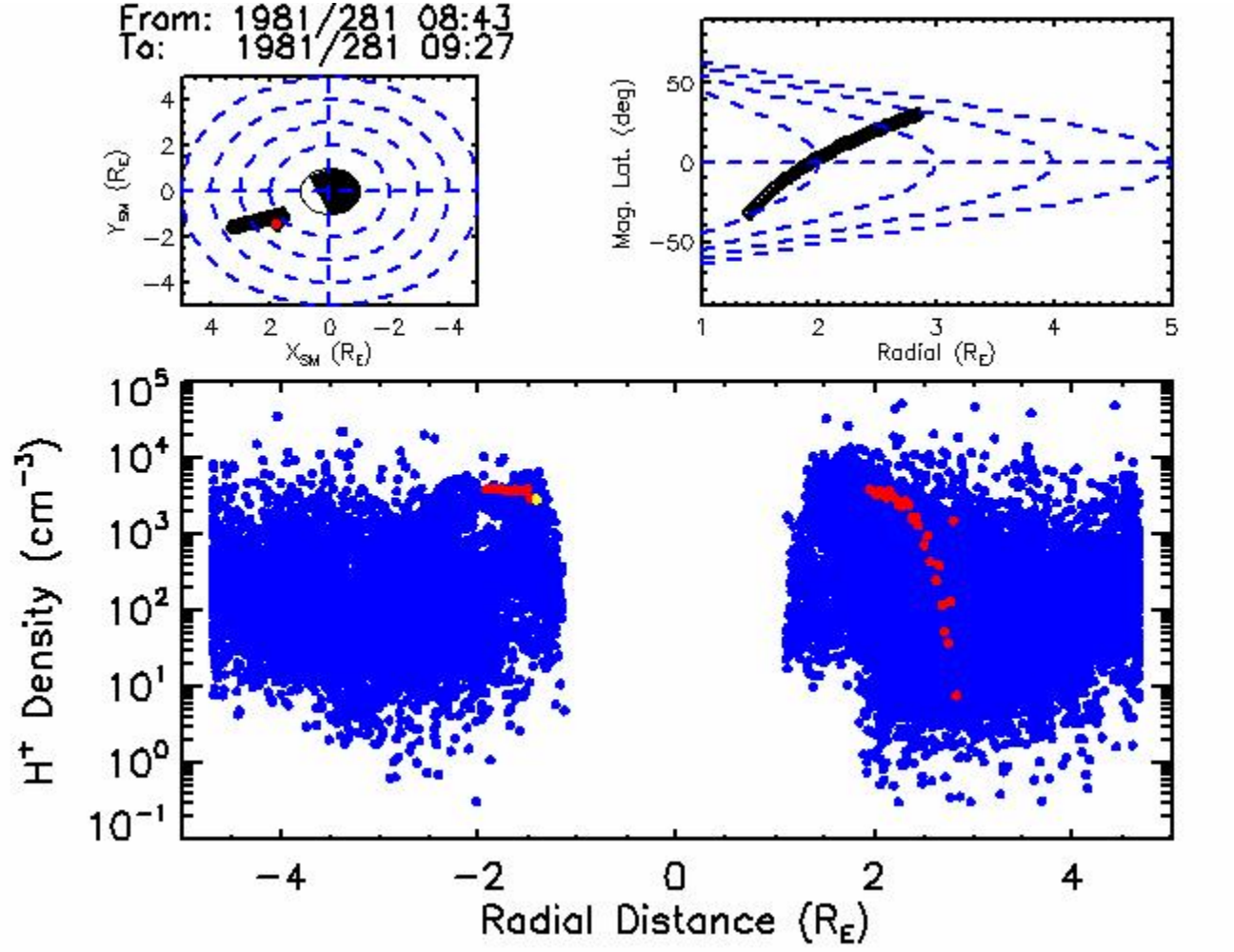
Mini-Plasmasphere Workshop, JHU/APL October 7-8, 2015

In Situ Challenge for DE 1 RIMS

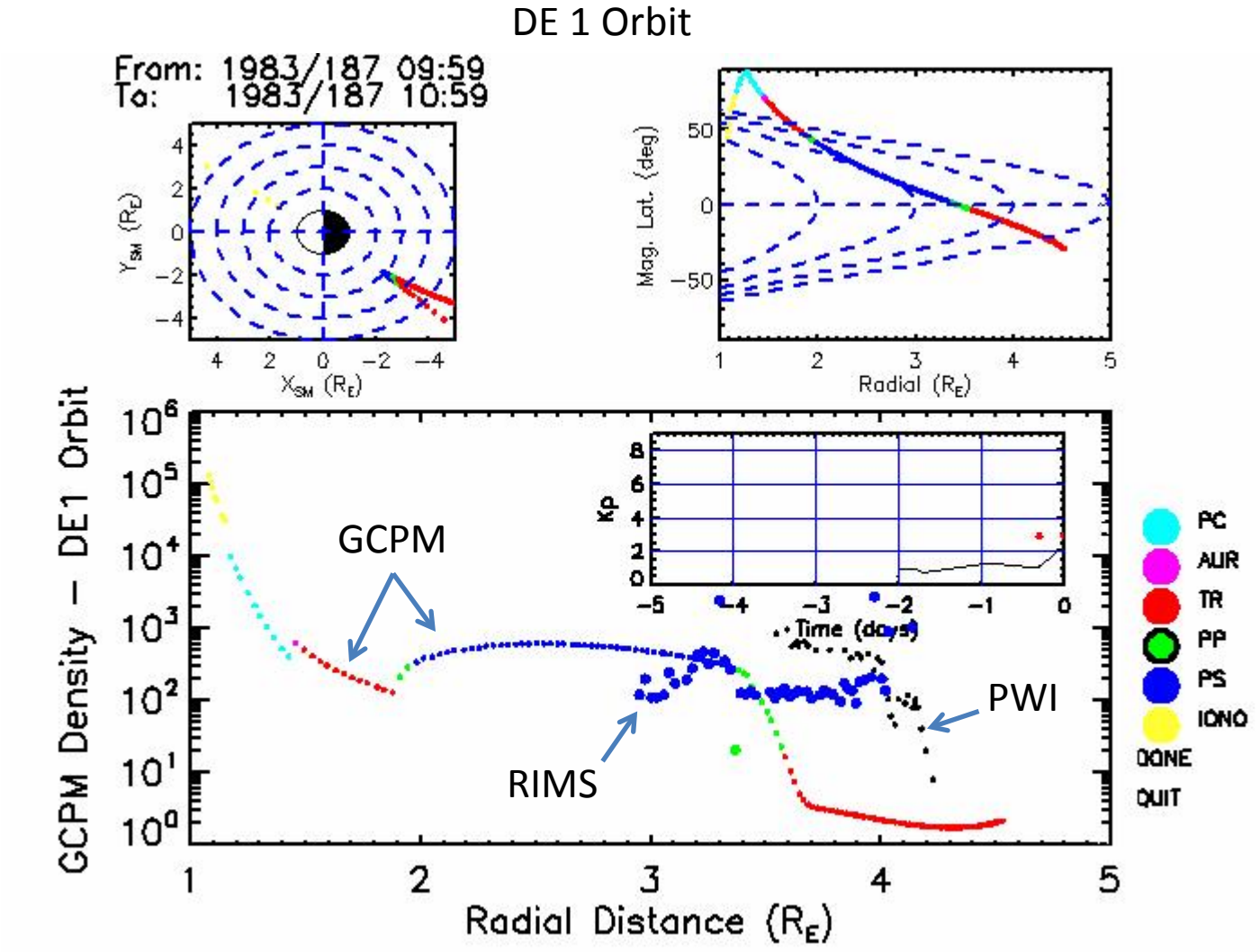




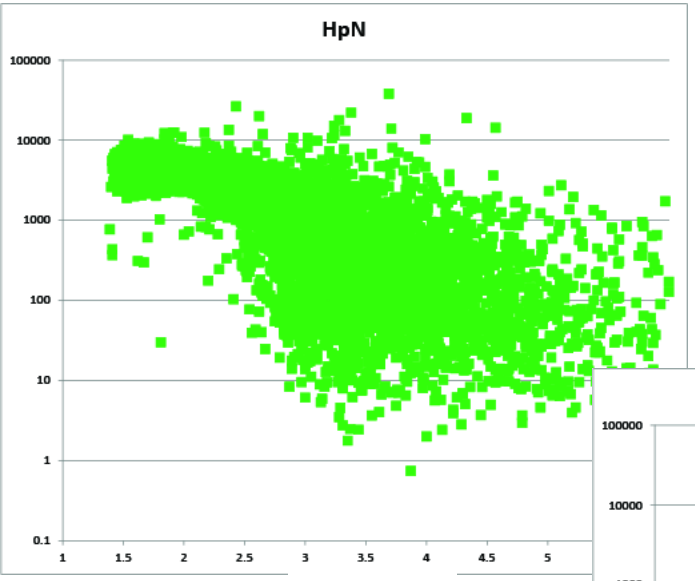
Morphological Regions are Mixed



Separating Morphological Regions



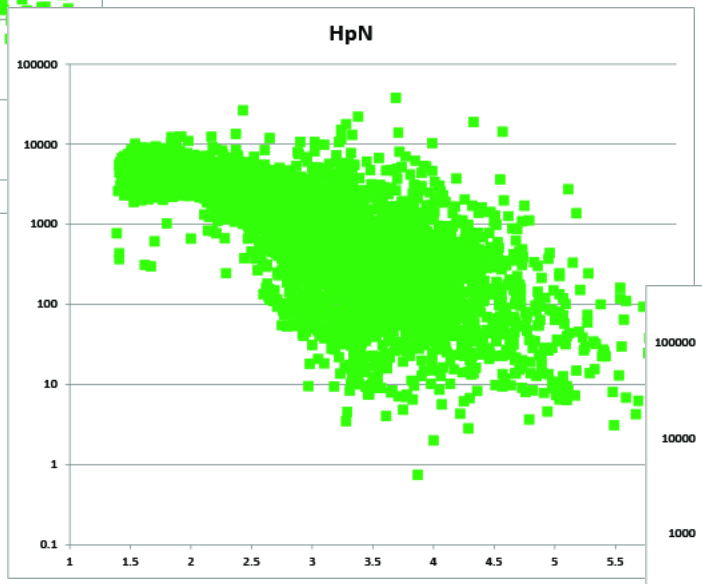
Plasmaspheric H^+ Densities Versus L



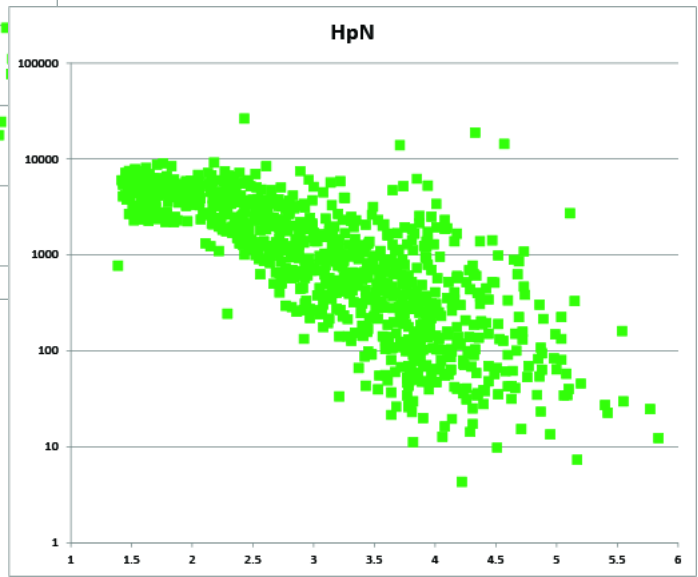
L-Shell

All H^+ Density Values; all conditions

It is important to ask the right questions.

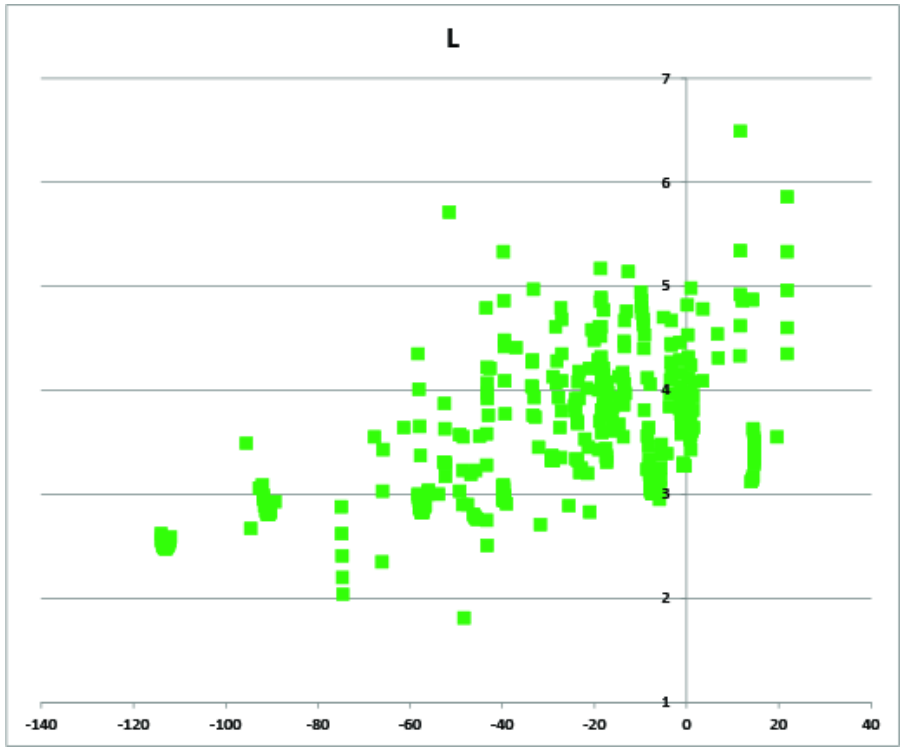


Plasmasphere H^+ Density values only; all conditions

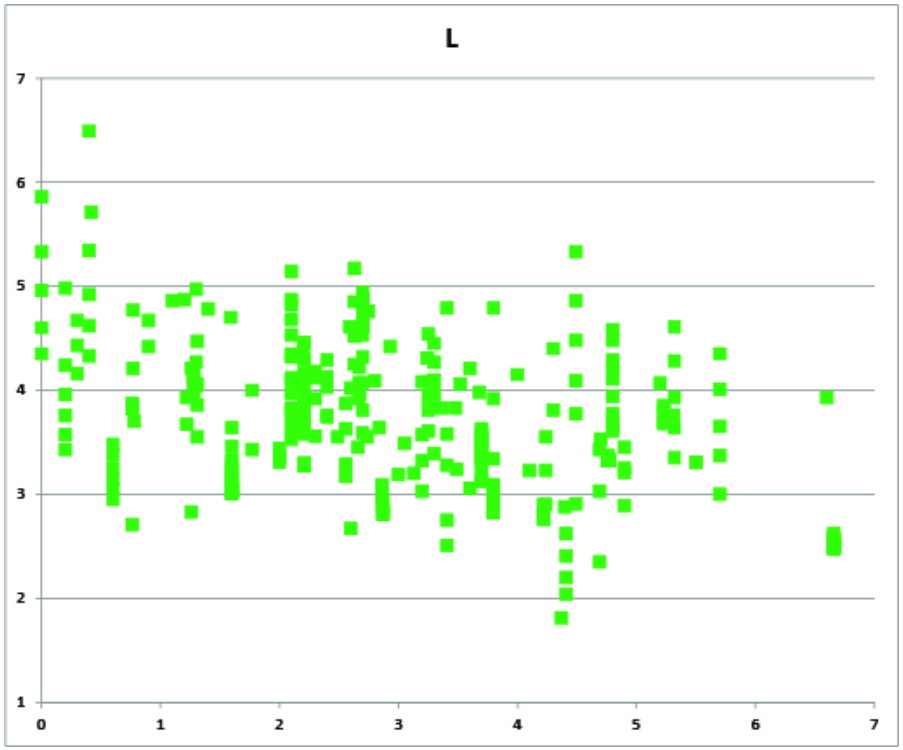


Plasmasphere H^+ Density Values for $Kp \leq 2$ and 3-day steady conditions

L-shell Plasmapause Locations

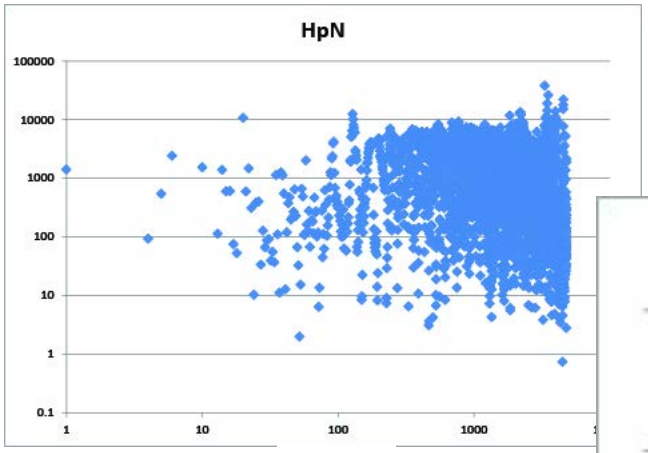


Dst



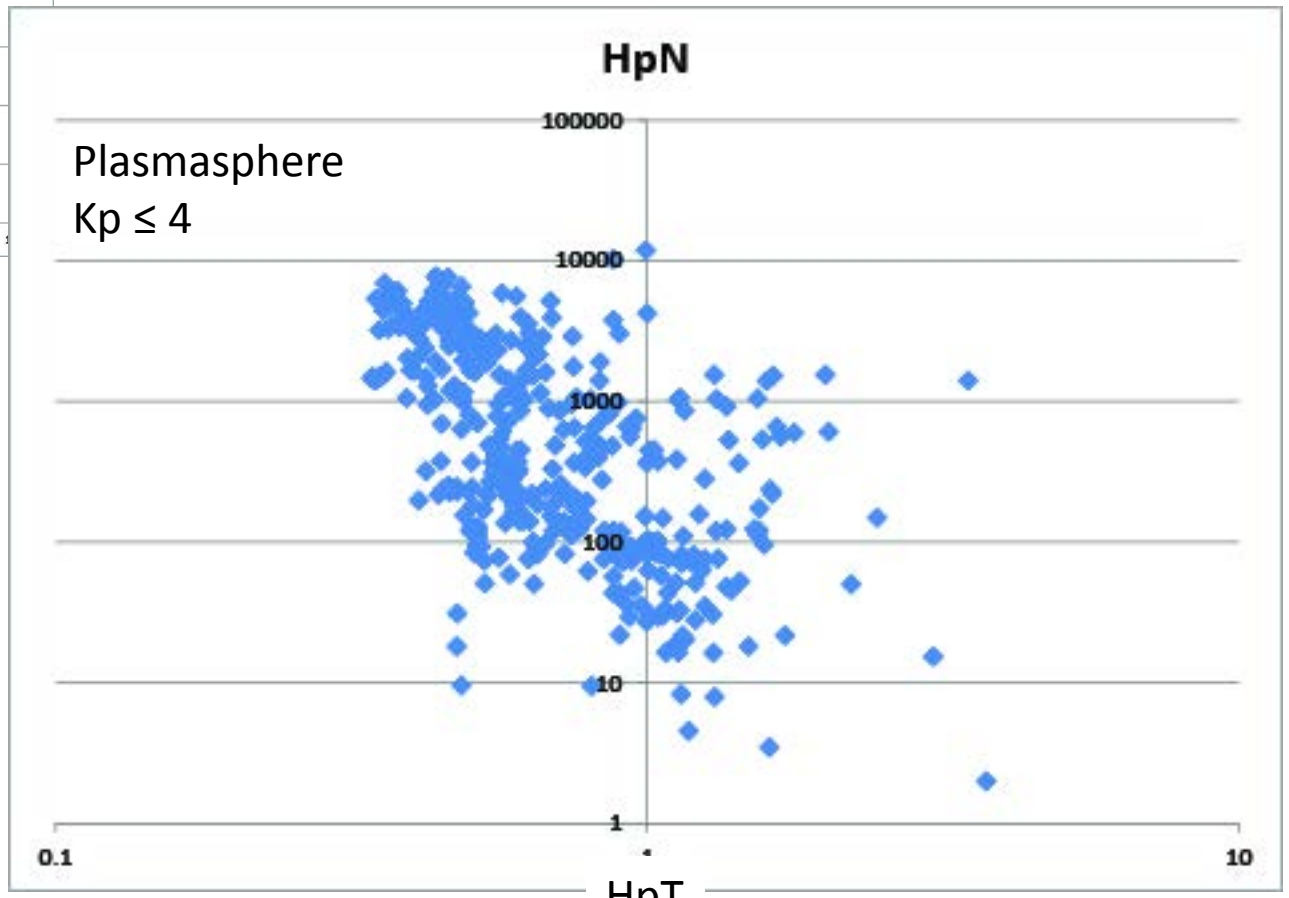
Kp

Plasmasphere H^+ Density Versus H^+ Temperature



HpT

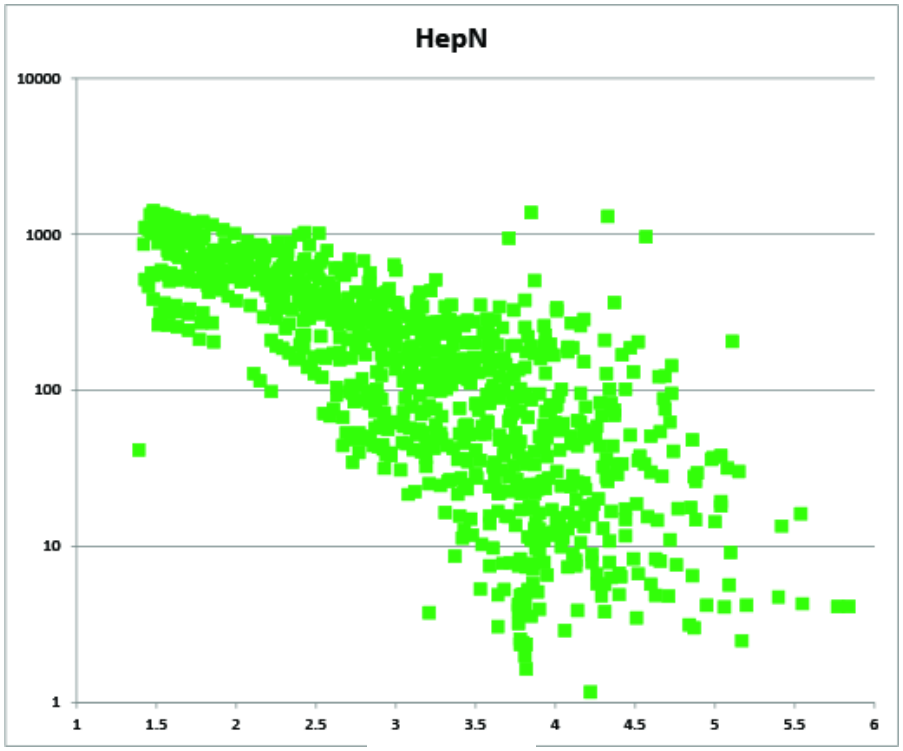
Plasmasphere



HpT

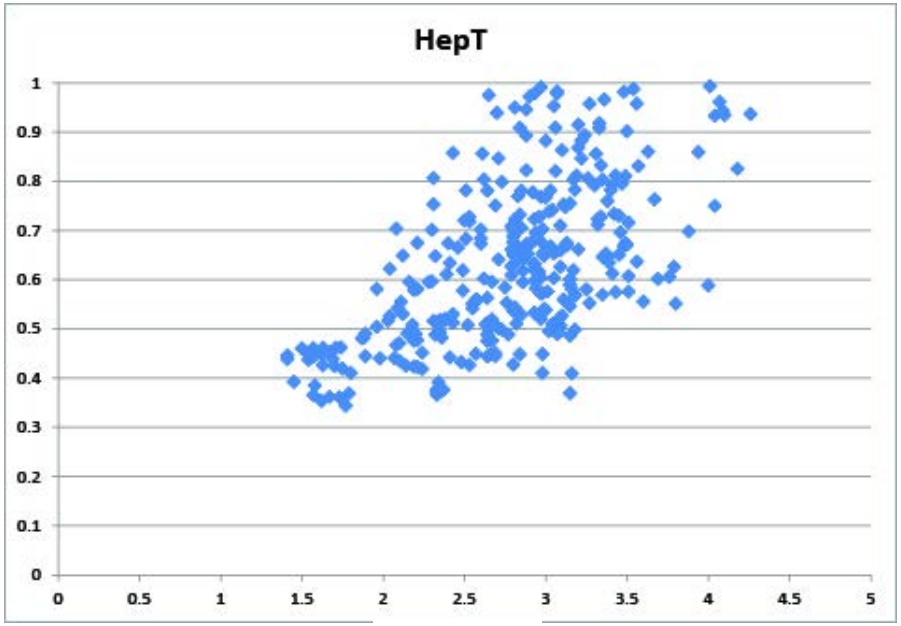
Plasmasphere He+ Density & Temperature Versus L-Shell

Kp ≤ 2 and 3-day steady conditions



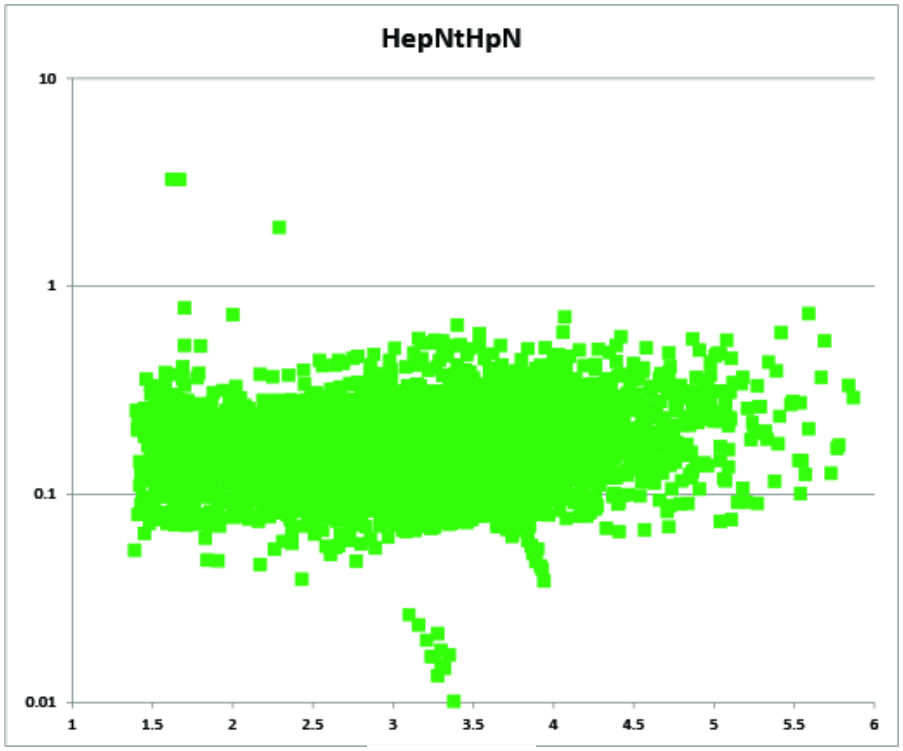
L-Shell

Kp ≤ 4

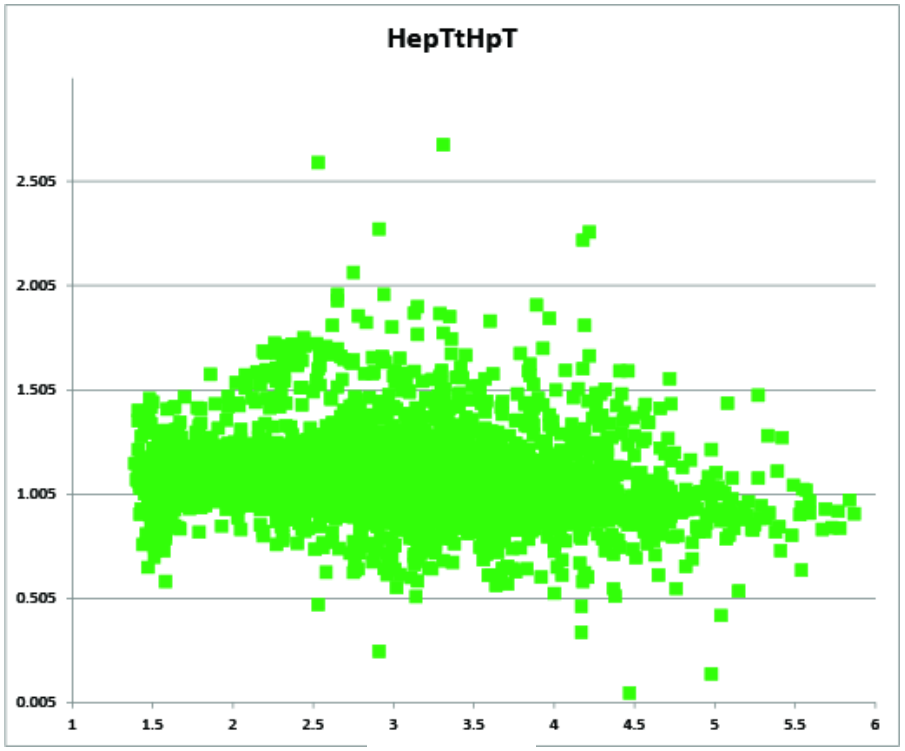


L-Shell

He^+/H^+ Density & Temperature in the Plasmasphere Versus L-Shell

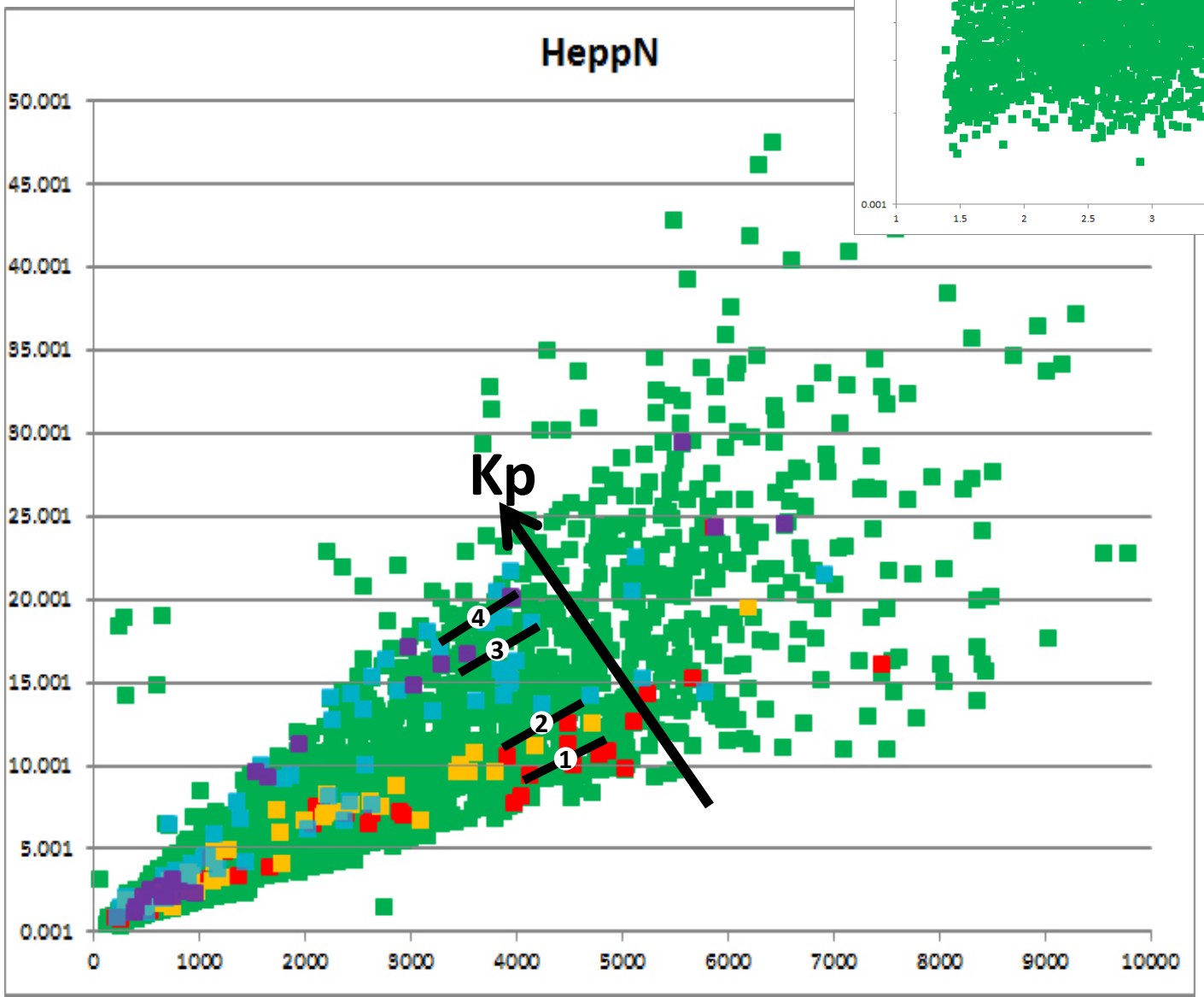


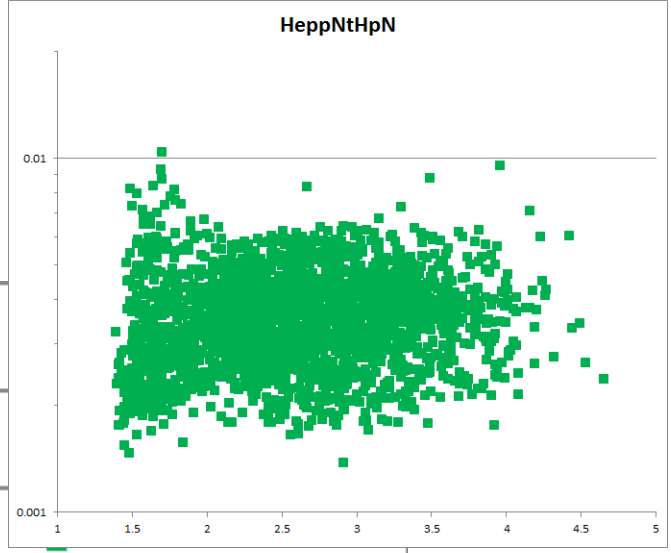
L-Shell



L-Shell

He^{++} Versus H^{+} Densities With Kp Dependence





O+ Density Versus L-Shell in the Plasmasphere